

Manufacturing The Future of Communications™

InterDigital®

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JUN 14 1994

**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY**

June 13, 1994

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, DC 10554

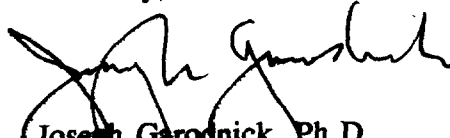
Re: Comments of InterDigital Communication Corporation
in ET Docket 94-32

Dear Mr. Caton:

Transmitted herewith are an original and four copies of the comments of InterDigital Communications Corporation in the above-referenced proceeding.

If you have any questions with regard to this matter, please do not hesitate to contact me.

Sincerely,


Joseph Garodnick, Ph.D.
Executive Vice President

JG:ca

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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ET Docket NO. 94-32
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of

Allocation of Spectrum Below
5 GHz Transferred from
Federal Government Use

TO: The Commission

COMMENTS OF INTERDIGITAL COMMUNICATIONS CORP.

I. INTRODUCTION

InterDigital Communications Corporation ("InterDigital")¹ respectfully submits its comments in response to the FCC's Notice of Inquiry (NOI) in the above captioned proceeding. The NOI seeks information on potential applications for 50 MHz of spectrum that is being transferred from Federal Government to private sector use. The goal of the proceeding is to identify new and enhanced services which could result from the allocation of this spectrum. One of the spectrum blocks being transferred, 2402-2417 MHz, is located within the 2 GHz ISM band -- 2400-2483.5 MHz.

InterDigital is opposed to any allocation by the FCC in ISM spectrum currently occupied by non-licensed part 15 devices.

¹ On October 15, 1992, International Mobile Machines Corp. (IMM) acquired SCS Mobilecom/Telecom, Inc., a world leader in Code Division Multiple Access (CDMA) technology. SCS was one of the early pioneers in testing and proving the merit of Broadband CDMA (B-CDMA) technology in the PCS microcell environment. The merger of the two companies and their technology staffs has resulted in the formation of a new company: InterDigital Communications Corporation

II BACKGROUND

InterDigital is a wireless technology manufacturer that has developed an advanced, spectrum efficient digital radio system currently in use providing wireless loops between telephone central offices and customer premises. The system, called the Ultraphone, is based on digital Time Division Multiple Access (TDMA) techniques which allow multiple users to share a single radio channel. This same TDMA technology approach has also been selected by the cellular industry for deployment as the next generation of digital cellular radio.

InterDigital is also a leader in the development of CDMA spread spectrum technology. Through its acquisition of SCS Mobilcomm, InterDigital has merged the pioneering CDMA technology accomplishments of SCS with the mature TDMA technology of IMM to form a broadbased wireless technology company positioned to provide a wide array of technology solutions for the wireless industry.

III. DISCUSSION

InterDigital is currently developing a wireless PBX using spread spectrum technology which will operate in the lower ISM band,² under the FCC's Part 15 rules. InterDigital is also planning future products in other ISM bands including the 2400-2483.5 block of spectrum. Accordingly, we are vitally interested in any changes to the allocations in the ISM bands, particularly

2. The three ISM bands are: 902-928 MHz, 2400-2483.4 MHz, and 5700-5825 MHz.

if licensed services are involved.

The ISM bands have proven to be a fertile area for technology innovation primarily because of the FCC liberal rules for non-licensed service. Over the last nine years the Commission has instituted a series of Part 15 rule changes to encourage the development of new non-licensed spread spectrum devices. The latest of these rule changes was released in 1990 to "facilitate greater flexibility in the design and use of low power, non-licensed spread spectrum systems."³ These and other rule changes in the ISM bands led to the development of the first commercial spread spectrum devices, which have been in use in the ISM bands for several years.

This technology innovation will be seriously curtailed if the Commission elects to allocate the 2402-2417 MHz band. This band, identified by the NTIA for transfer from government to private sector use, is part of the 2400-2483.5 MHz ISM allocation that is already in use by the private sector. In this band, in addition to Part 15 devices, are amateur radio users and ISM devices as well as nearly 80 million microwave ovens.

It is clear that any allocation to a licensed service in this band would create intolerable interference problems. Furthermore, it would undermine opportunities for Part 15 innovation and impede the flow of technology, and the resulting products, from innovators to consumers.

³Report and Order, Docket No. 89-354, FCC 90-233, Released July 9, 1990.

The Commission could not allocate this band for a licensed service without disrupting the existing users and incurring unacceptable interference to any new proposed service. In fact, if an allocation was made to a licensed user in this band the Commission would find themselves in a situation similar to that currently encountered in the lower ISM band: 902-928 MHz. In that band, the Commission proposed to license a new location and monitoring service. The proceeding has not moved forward because of the real concern over interference from other users of the 902-928 MHz band. The proceeding has just entered its third year and there is no clear path to a resolution of the interference problem.

Frequency management is among the Commission's most basic responsibilities. The Commission does not customarily authorize new or expanded uses of a frequency band when it knows the likely result will be interference, and it should not depart from that practice in this instance.

The Commission should eliminate the 2402-2417 MHz block of spectrum from any future allocation. If the FCC doesn't license a new service in this band, it would continue to be a desirable location for future innovative for non-licensed devices.

Its location for future technology innovation is enhanced by the falling costs for 2 GHz components. Currently, many non-licensed Part 15 devices are located in the 900 MHz ISM band because of the low cost of components for price sensitive consumer electronics. However, the 2400-2483.5 MHz band is

becoming more attractive to many non-licensed device manufacturers.

The demand for 2 GHz components (and the resulting lower costs) is being fueled by the emerging 2 GHz market for the U.S. PCS industry. Moreover, the 2 GHz market to support PCN and second generation cordless in Europe and Japan is already resulting in a rapidly declining cost curve worldwide for 2 GHz components. These declining costs have already attracted several Part 15 companies to develop and market non-licensed devices operating in the 2400-2483.5 MHz band.

As a result, the Commission should be extremely careful about taking any action in the 2402-2417 MHz block of spectrum that would eliminate this band as a location for future wireless technology innovation.

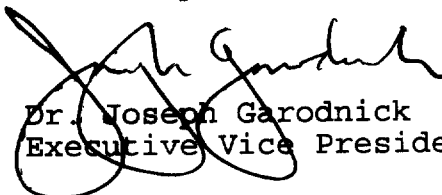
IV. CONCLUSION

Licensing a new service in the 2402-2417 MHz band will create intolerable interference among all users of the band and will undermine opportunities for new and innovative products for consumer and commercial use. These benefits should not be abandoned.

Any action by the Commission to license a new service in the 2402-2417 MHz band will cause the diversion of untold millions of dollars of R&D, manufacturing and curtail the growth of the non-licensed, Part 15 industry.

Accordingly, the Commission should not licensing a new service in this band.

Sincerely,



Dr. Joseph Garodnick
Executive Vice President

June 15, 1994

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